Theresa Buberl
LMU München, Krausz group

Broadband seed generation from Yb-doped thin-disk lasers.
Two methods to shorten 1 ps pulses.

A major requirement for developing optical parametric chirped pulse amplifiers (OPCPA) is the availability of seed pulses with a broadband spectrum and a well-behaved spectral phase. Supercontinuum generation in bulk and fibers driven by hundreds-fs pulses is the current method of choice for generating the OPCPA seed pulses. However when the process is triggered by longer pulses in the order of ps, the generated spectrum shows imperfect coherence and energy fluctuations. Diode-pumped Yb-doped thin-disk lasers with 1 ps pulse duration are going to revolutionize the current state of the art of OPCPA pump sources. These advances demand for pulse shortening of 1-ps pulses down to several hundreds of fs, where stable filamentation in fiber or bulk can be achieved. In this regard I will talk about pulse shortening of 1 ps pulses down to 250 fs pulses based on corss-polarized wave generation. To achieve higher conversion efficiency and improved energy stability I will present an alternative approach using cascaded chi(2)-nonlinearities.